



Montana Fish, Wildlife & Parks

Memo To: Interested Parties
From: Andy Brummond
Date: May 21, 2008
Subject: Spring 2008 Drought Update

General/Statewide

The 5/13/08 version of the U.S. Drought Monitor shows abnormally dry to severe drought conditions in place across the eastern two thirds of Montana with no drought showing in the western third. This is a vast improvement for western Montana, which last Fall, was categorized as being in moderate to extreme drought. Conversely some areas in eastern Montana have seen a decline in conditions. During the last month the Monitor has held mostly steady across the state. The Monitor can be accessed at <http://www.drought.unl.edu/dm/monitor.html>. The graphic is prepared using a variety of drought indices, and is updated approximately weekly.

The May 15th U.S. *Seasonal Drought Outlook Through August 2008* predicts drought persisting or intensifying in the eastern two thirds. The outlook can be found at: http://www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html).

Updated daily accumulated mountain precipitation and snow water equivalent information can be viewed in tabular form, by basin, and locations within these basins, by accessing: http://www.wcc.nrcs.usda.gov/cgibin/past_up.pl - choose "Montana", enter the month, date, and year, and it will generate the list. Snowmelt is now well underway. Unseasonably cold temperatures across the state left the snowpack in place later than normal. Despite only near normal mountain precipitation snow pack by May 12th was well above normal. The following table contains compares snow water equivalent for May 12th and 18th. Despite warm temperatures setting in on May 16th snowpack remained relatively steady through the 18th.

Basin	Snow Water Equivalent (% of avg.), 5-12 / 5-18
Kootenai	143 / 140
Flathead	125 / 127
Upper Clark Fork	106 / 102
Bitterroot	150 / 146
Lower Clark Fork	151 / 152
Jefferson	113 / 104
Madison	124 / 123
Gallatin	129 / 129
Missouri Headwaters	122 / 118

Hdw. Missouri Mainstem	105 / 98
Smith, Judith, Musselshell	126 / 124
Sun, Teton, Marias	108 / 119
Missouri Mainstem	121 / 114
St. Mary, Milk	113 / 110
Upper Yellowstone	120 / 118
Wind (WY)	96 / 99
Shoshone (WY)	104 / 109
Bighorn (WY)	108 / 107
Tongue (WY)	135 / 147
Powder (WY)	103 / 135
Lower Yellowstone	109 / 111

Review of precipitation for the 12-month period through April 2008 shows most of the state at 90 to 110 percent of average precipitation with the exception of the North Central Climate Division at 70 to 90 percent of average precipitation. A graphic of this period can be found at:

<http://www.wrcc.dri.edu/cgi-bin/spiFmap.pl?ave12>

In April, precipitation was well below average over the entire state with the exception of the Southwestern Climate Division, which was normal.

See: <http://www.wrcc.dri.edu/cgi-bin/spiFmap.pl?ave01>

Another helpful graphic is located at http://www.cpc.ncep.noaa.gov/cgi-bin/anom_realtime.sh. This graphic is on a national basis, but is updated daily and displays running 30-day (or 90-day) departure from normal precipitation statistics. From the link, choose the bottom-most entry in the column (for most recent date) in either column. The result is four graphics, with “% departure from normal precip” in the lower left.

The Surface Water Supply Index map for May considers soil moisture, precipitation, snow pack, and reservoir storage, according to seasonal relevance. As shown at <http://nris.state.mt.us/wis/SWSInteractive/SWSI-App.asp?month=5&year=2008> SWSI indexes have improved compared to last year at this time. Currently 45 of the 54 basins show near average or better water supply conditions compared with only 11 basins last year. Two basins are classified as extremely dry (Milk and Missouri below Ft. Peck) as compared with four at this time last year. The SWSI values can be found by clicking on **REPORT** at the bottom center of the map.

Dates of peak flows, by stream, are at

<http://www.mt.nrcs.usda.gov/snow/watersupply/peakdatetable.html>. Peak flows for 2008 are estimated for many Montana Rivers, many of which have already occurred or are expected to occur imminently. Forecasts of low flow timing and amount for selected rivers (Blackfoot, Big Hole, Smith, Dearborn, Jefferson and Gallatin) are posted at <http://www.mt.nrcs.usda.gov/snow/watersupply/lowflow.html>.

The statewide graphic showing streamflow conditions compared to long-term averages is located at <http://mt.waterdata.usgs.gov/nwis/rt>. As of May 15th many gauges were reporting flows below the 25th percentile reflecting the lack of snowmelt and lack of precipitation. By May 19th many streams had responded to warm weather resulting in snowmelt bringing nearly every stream in western Montana into the normal or above normal range. Several were at or approaching all time highs for the date. In the remainder of the state storage in reservoirs dampened the snowmelt impact with many streams remaining below normal. Data for specific USGS gauges is available at:

<http://mt.waterdata.usgs.gov/nwis/current?type=flow>.

The Montana Drought Monitoring website is located at <http://nris.state.mt.us/drought/>. Committee members and website administrators welcome suggestions for postings and site organization.

Montana’s Official Drought Website is at <http://drought.mt.gov/>

FWP Drought Response

In compliance with the Montana Drought Plan FWP is currently monitoring stream flows and forecast water supply conditions. Soon final determinations will be made regarding which streams and rivers if any will likely have flows fall below the FWP instream flow water rights. If stream flows are expected to drop below FWP instream flow water rights, letters will be sent to junior water users on these streams and rivers by June 15th informing them of the likelihood that FWP will be placing a call on them to cease diversions later this summer. As streamflows drop below FWP instream flow levels, call letters

will be sent to junior water users asking them to cease diversion until such time stream flow recovers to levels above FWP's instream water rights.

FWP is continuing to work with watershed groups in areas such as the Jefferson, Blackfoot and Big Hole Rivers where drought plans are being implemented to maintain minimum flows for the fishery. FWP continues to administer existing water leases and pursue new water leases in an effort to maintain and enhance stream flow on key streams throughout Montana.

FWP Regional Reports

In the past FWP has reported largely on drought impacts related to fisheries. In an effort to better understand how drought is impacting wildlife and recreational opportunities, each of the seven FWP Regions is being asked to supply information with regard to how drought is impacting wildlife and recreation as well as the fish. The following questions, categorized by division, were asked of each FWP Region. Some questions are seasonal in nature and are not relevant at this time.

Wildlife

Where are drought conditions affecting wildlife populations? (For example, note mild or harsh winters' impact on populations, or weather-related disease issues.)

Where are drought conditions causing wildlife to move from normal range to agricultural lands or urban areas?

Where are game damage hunts in place or planned to mitigate impacts to agriculture due to wildlife being displaced by drought conditions?

Where are changes in place, or being considered to grazing, recreation, hunting or other activities on WMAs in response to drought/fire conditions?

Parks

Where are drought/fire conditions causing state parks and fishing access sites to be closed or use restricted?

Where are low lake or water levels hindering or preventing recreational activities at state parks or fishing access sites?

Where are low stream flows not allowing or restricting recreational use of rivers?

Fisheries

Where are fish winterkills being reported in lakes or ponds due to low water levels or other drought conditions?

Where are fish summerkills been reported in lakes or ponds due to low water levels, high water temperatures or other drought conditions?

Where are streams or rivers closed to angling or have fishing restrictions due to low stream flows and/or high water temperature?

Where are drought conditions affecting fish populations? (For example, note where population trends can be explained by drought-impacted flow and temperature conditions.)

Where have low reservoir levels impacted fish populations in important flat-water fisheries? (For example, note where fishing regulation will be lifted to increase the harvest of stocked fish populations in waters impacted by low water levels and rising temperatures.)

Where are low reservoir levels impacting angling opportunities?

Enforcement

Where are drought/fire conditions causing landowners to close land to hunting and fishing?

Where are fire restrictions causing changes in the number of hunters in the field?

Region 1 – Kalispell

2008 is a study in contradictions. Calendar year precipitation has been below normal and most of the region is 2.0"-2.5" below normal for year to date. However, for the water year snowfall came early in the winter, there was little snowmelt until recently and snowpack continued to build through the end of April. Most areas started into May with 110-120 percent or more of normal snowpack with an even higher water content. A number of sites have recorded record or near record snowpacks. Cool weather has delayed runoff and most streams were running only half of normal until about May 10th. That should promote good flows well into summer and might avoid drought restrictions. Stream flows are now approaching normal high levels. Predicted warm weather the end of this week has raised warnings about potential flooding in many areas and has raised discussions of interagency coordination in emergency flood situations.

Wildlife was put under considerable stress by the extended snowpack. Cool weather delayed green-up and annual wildlife aerial surveys have just been completed. Flight counts have not been fully analyzed yet but it appears wildlife numbers are down in some areas. Spring bear hunting has been very slow with little green-up and snow blocking access to traditionally popular areas. Spring bear harvest may only be 20% of normal.

In anticipation of a large run-off, Flathead Lake was drafted the full 10 feet by April 1, the first full draft in 10 years. Refill was also delayed for flood control. It was very difficult or impossible to launch at many of the ramps around Flathead Lake. Ramps such as Somers Fishing Access Site (FAS) had drop-offs at the end due to boats power-loading onto trailers. West Shore State Park (SP) ramp was damaged by an apparent overweight vehicle and had to be shut down for emergency repairs, which left only Wayfarers and Yellow Bay State Parks, Sportsman Bridge FAS and Blue Bay and Salish Point tribal ramps with Flathead Lake access. West Shore SP is now back in operation. Flathead Lake is currently up 2.5 feet, is raising 2"-3" per day and should easily hit the targets of 3' down by Memorial Day and full by June 15. State Parks region-wide should open on schedule.

Fish plants were delayed by nearly a month by late ice-out, which put hatcheries in an overload situation. Many lakes above 4,000 feet are still frozen. There have been no reports of winter fish kills to date. Predicted flooding will result in a lot of stream bank repair permit applications this summer. It is hoped the snowpack will sustain summer stream flows and refill some lakes drawn down by past drought. Ashley Lake is following the Management Agreement discharge schedule and should easily refill.

The May inflow forecast for Lake Koocanusa for April-through-August is 97% of normal (6.116 million acre-feet). The inflow forecast has been reducing since March; the April forecast was 101% of normal (6.396 million acre-feet). Current reservoir elevation (May 7th) is 2,395.33 feet (63.67 feet from full pool, about 6 feet below the flood control target elevation). Inflow has gradually increased from 6.9 kcfs on May 1st to 12.5 kcfs on May 6th. Current outflow from Libby Dam is 9.00 kcfs.

The May inflow forecast for Hungry Horse Reservoir for May-through-September is 116.2 % of normal (2.131 million acre-feet). The inflow forecast has increased since March. Current Hungry Horse Reservoir elevation (May 7th) is 3,500.83 feet (59.17 feet from full pool, about 2 feet below the May flood control target elevation). Hungry Horse Reservoir inflow has gradually increased from 4.7 kcfs on May 1st to 10.944 kcfs on May 7th. Current outflow from Hungry Horse Dam is 4.880 kcfs and this discharge level is expected to continue until the Flathead River approaches flood stage, when HHD discharge will reduce to minimum (as low as 154 cfs) if necessary to keep the Flathead River below flood stage.

The NOAA-Fisheries Biological Opinion on the Operations of the Federal Columbia River Power System was released May 5, 2008. The NOAA-Fisheries BiOp and the 2006 USFWS BiOp contain specific operating requirements for Libby and Hungry Horse Dams that are nearly identical to Montana's preferred operations in the Northwest Power and Conservation Council's Mainstem Amendments. The remaining legal dispute concerns a possible spill test at Libby and the potential for adding a sixth turbine intended to benefit endangered Kootenai white sturgeon.

Region 2 – Missoula

No fish winterkills of fish have been report although ice is not off all of the lakes as of the first week of May. Drought may be impacting fisheries, as some declines in numbers or species shifts are evident. It is difficult to attribute these changes to only or predominantly drought. Some non-drought years are needed to see a reverse of the shift to accurately assess cause.

Region 3 – Bozeman

No Region Three parks or Fishing Access Sites are currently are closed or restricted due to drought/wildfire conditions. The region is monitoring river water levels and may experience some minor flooding this weekend (5/17 & 5/18) with the forecasted high temperatures. No Region Three parks or FASs are currently affected by low lake or water levels that would prevent recreational activities. All rivers in Region Three are at normal flow levels for this time of the year, but may increase dramatically this weekend (5/17 & 5/18) with the weather forecast calling for higher than normal temperatures.

As of 5/16 Clark Canyon and Ruby Reservoirs are both open and accessible. Hebgen Lake is partially to mostly ice covered and USFS access roads are closed. Hyalite Lake is mostly ice covered, the access road to Blackmore is open but parking there and foot travel beyond will be extremely challenging due to deep snow. Dailey Lake is open but access is limited to light vehicles due to a damaged bridge on the county road in.

Region 4 – Great Falls

May 16: Most streams, rivers and reservoirs in Region 4, north-central Montana, remain well below average or median water levels for mid-May. This is likely due to a combination of a cool spring and prolonged drought conditions. However, Sno-tel data shows mountain snowpack for May 16, 2008 at 127% of average for the Missouri Headwaters, 140% for the Smith-Judith-Musselshell, and 135% for the Sun, Teton, and Marias River drainages. The only stream gage site above its long-term median flow in the region is Muddy Creek at Vaughn (06088500), which is highly influenced by irrigation wastewater from the Greenfield Irrigation District.

The Marias River Flow and the Sun River at Simms is below the minimum instream flow recommended for maintaining the aquatic community. On the Smith River, flows are above the instream flow needs and the minimum recommended flow levels for rafts (250 cfs) and canoes (150 cfs) below Camp Baker.

Upstream from there, water levels are below minimum instream flow recommendations. On May 16, the Dearborn River was lower than what would be recommended for the use of rafts.

Martinsdale Reservoir remained at 14% of average at the end of April; because of low water levels required for dam repair last year and lack of runoff available to store water in the Musselshell drainage, two substantial plants of rainbow and westslope cutthroat trout were canceled. Wood Lake in the Benchmark area is one of the smaller bodies of water that likely suffered from winterkill. Fish plants in three smaller ponds, one northwest of Fort Benton and two east of Great Falls were canceled because of low water levels.

Drought conditions are not currently having any substantive effects on wildlife at this time; however, that may change as the season progresses depending on weather patterns.

Region 5 – Billings

Winter precipitation lagged behind normal in many portions of Region 5, with the exception of some mountain ranges, which had average, or above average snowpack. Additionally, spring precipitation in portions of Region 5 continues to lag behind average. Recently several early-May precipitation events have eased that situation somewhat.

This spring has been characterized by below average temperatures, which have delayed snowmelt in the mountains. Until recently the Musselshell basin lagged behind average snowpack and has realized below average spring precipitation. However, many of the other systems in south-central Montana have excellent snowpack. For example, the Bighorn Basin presently (May 12th) has 108% of average snowpack. Spring precipitation has been lacking outside of the mountain ranges in the region, as highlighted by the Billings area, which realized approximately 3 inches less than average precipitation for the January –May period.

The lack of an early growing season that has characterized the last few years may stress upland birds during the nesting/brood rearing periods, but wetter conditions recently may mitigate somewhat as vegetative growth should come on strong during the mid May period. March and April were cold and dry, thus delaying the usual “greenup” that occurs in late March/early April. The late cold spring has resulted in some animals remaining at lower elevations in the mountain ranges in Region 5. However, game damage has not been realized.

The Bureau of Reclamation has reduced flows in the Bighorn River from 1900 cfs to 1500 cfs to address below expected runoff resulting from the cold spring and the resultant delayed snowmelt. At 1500 cfs, recreationists are confined into a relatively narrow channel. However, floaters continue to participate and Fishing Access Sites are receiving moderate to heavy use on the Bighorn. Some floaters are likely waiting for flows to increase on the Stillwater and the Yellowstone before enjoying opportunities there.

The fisheries in the Bighorn River and the Musselshell River Basin are receiving the brunt of the low flow scenarios. The Bighorn River fishery and its associated recreation are currently being negatively affected by BOR decisions to limit releases until certain reservoir levels are met. Both Brown and Rainbow spawns are being negatively affected by these low flows that have dewatered important egg laying, emergence, and brood rearing habitats in the Bighorn River system. In the Musselshell River system reservoirs have realized water shortages associated with delayed runoff and a dry spring. Martinsdale Reservoir and Deadman’s Basin Reservoir have both been affected by this year’s water deficiency. At this point, it would take a wet spring/summer to recharge some of these reservoir systems.

Region 6 – Glasgow

Dry conditions may affect wildlife populations throughout Region 6. A lack of green vegetation May impact survival of elk calves, bighorn sheep lambs, and deer and antelope fawns. Lack of green vegetation and insects may impact survival of sharp-tailed grouse, sage grouse, Hungarian partridge and pheasant chicks as these need high protein food to survive shortly after hatching. Waterfowl production will be impacted and reduced due to a lack of temporary wetlands for pair and nesting habitat, and high protein aquatic insect. Rains finally came to northeastern Montana early in May, hopefully that will help survival.

A potential problem exists in areas of eastern Montana where a lack of native green vegetation may cause deer, antelope and elk to move onto agricultural lands. This could be more of a problem in sub-irrigated creek bottom and irrigated river bottom fields, and on center pivot alfalfa and domestic grain fields. If conditions do not improve management and/or damage seasons may be implemented in areas where agricultural crops are being damaged by big game. These would likely occur in river and creek bottom areas for deer, and similar areas adjacent to the Missouri River Breaks and CMR National Wildlife Refuge for elk.

Low water levels will continue to hinder or prevent recreational activities on Fort Peck Lake at the Duck Creek & Rock Creek Fishing Access Sites. This situation has been on-going, for 6 years.

A Crappie kill was reported in Dry Fork Reservoir due to low water during this past winter. Other fish in reservoir will likely succumb as irrigation withdrawals are made and evaporation intensifies this summer. Fish limits could be lifted as water level continues to decline, which would allow anglers use of fish before massive die-off. However, low water is already adversely impacting boat access.

Region 7 – Miles City

No current drought impacts are being reported in Region 7. Largely good conditions last year, good snowpack this year and recent precipitation have helped keep drought at bay.